

to:WG10, QC CMT, PPC

Proposal for STEP/SC4 Standards Release Strategy

*Post Beijing Version
Draft-Draft*



Y. Ishikawa, Ishikawajima Heavy Industries Co., Ltd.
H. Hiraoka, Chuo University

October 1998

Y.Ishikawa & H.Hiraoka

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AGENDA

- 1 STEP/SC4 Constitution
- 2 Principle
- 3 Development Process
- 4 Harmonization
- 5 AP Conformity Level

Annex

- A Generalized UoF
- B Compatibility and Version/Release
- C Interoperability

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1 STEP/SC4 Constitution

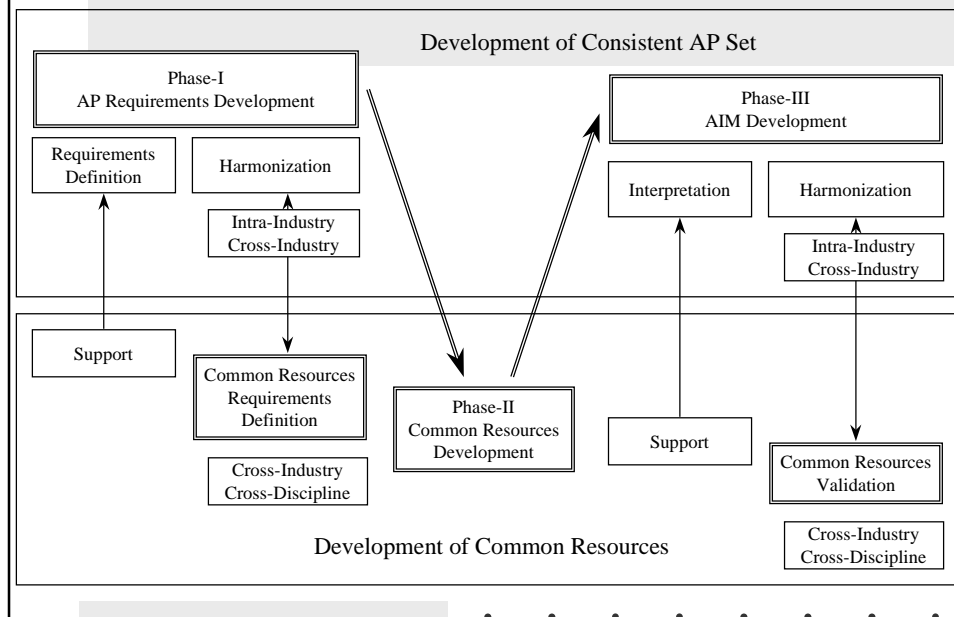
- We, the people of the ISO TC184/SC4,
deliver the consistent set of standards,
 - which are harmonized with each others
 - which are extensible and/or evolvable
 - which assure the continuous use of data asset
 - which can be used with complementary ISO standards

2 Principle

- Release APs
 - as a **single consistent set**
with the defined scope for the AP set
 - ◆ collected based on **the target release date/term**
 - ◆ by means of **synchronized development process**
 - as defined in “3 Development Process”

All APs are to be included within consistent set of AP.
APs, released in previous versions, are to be harmonized
in development process of new version.

3 Development Process



4 Harmonization

4.1 Purpose

4.2 Which are to be harmonized

4.3 Process and Methods

4.1 Purpose

- To develop the consistent set of APs
 - under the requirement of Constitution

Even with the help of advanced IT tools, we need human based harmonization activities among standard developers to create the consistent set of standards.

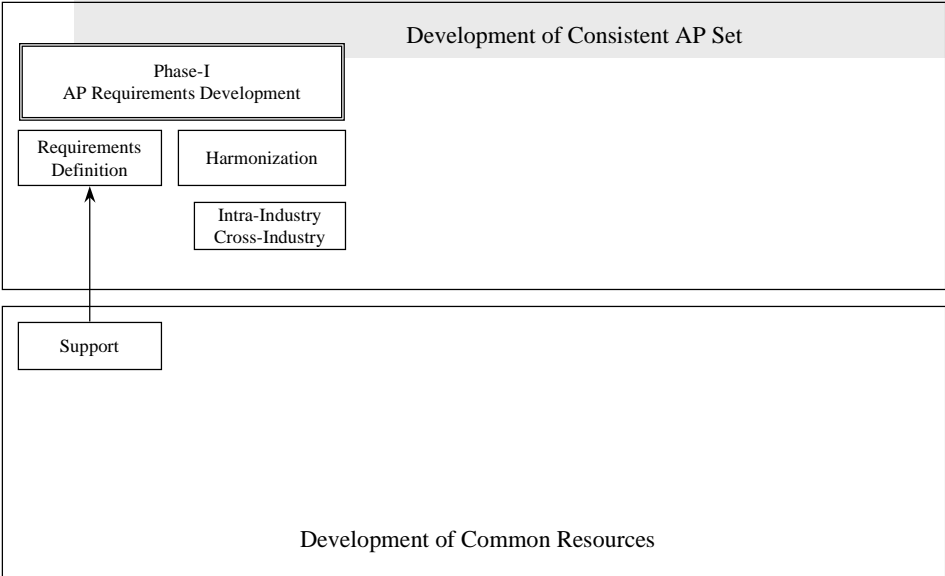
4.2 Which are to be harmonized

- APs
 - within the same industry
 - e.g. AP221 and AP227
(schematic design and spatial arrangement)
 - covering same function/discipline in different industries
 - e.g. AP221 and AP217
(schematic design for plant and ship)
 - e.g. AP214 and AP203
(automotive manufacturer and component supplier)
 - to be used for acquisition through supply chain
 - e.g. AP203 and AP202

4.3 Process and Methods

- 4.3.1 Harmonize Requirements (Phase-I)
- 4.3.2 Development of Integrated Resources (Phase-I & -II)
- 4.3.3 Development of AICs (Phase-II)
- 4.3.4 Harmonize Interpretation (Phase-III)

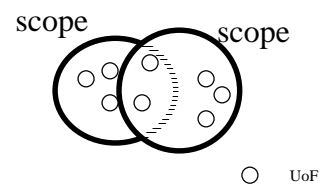
4.3.1 Harmonize Requirements



4.3.1 Harmonize Requirements (cont.)

(1) Scope (Phase-I)

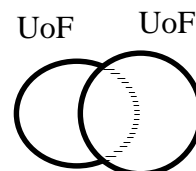
- Define and/or identify the scope of each AP
- Identify APs which has the overlapping scopes
 - Use the matrix proposed in “STEP/SC4 AP Framework”



4.3.1 Harmonize Requirements (cont.)

(2) UoFs(Phase-I)

- Identify the overlap of UoFs
- Harmonization among UoFs
 - Issue: method for harmonization. See Annex A.



4.3.1 Harmonize Requirements (cont.)

(3) Information requirements (Phase-I)

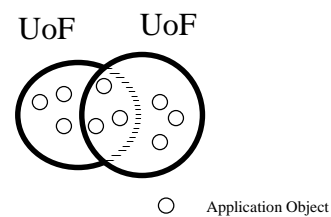
Application Object

Application Assertion

-> ARM (IDEF1X, EXPRESS-G)

-> ARM (EXPRESS)

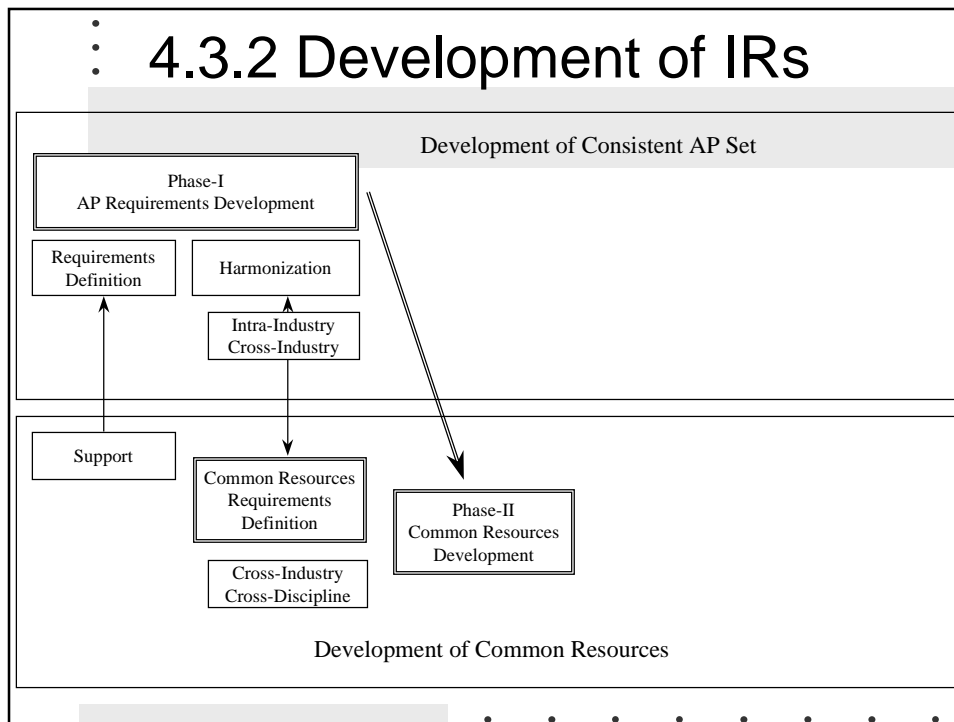
Note: Fully Attributed ARM => Issues for Constitution



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4.3.2 Development of IRs



4.3.2 Development of IRs (cont.)

(4) Integrated Resources(Phase-I and Phase-II)

Development strategy for Integrated Resources

Option 1: Abstraction of Intersection UoFs

Option 2: Abstraction of Union of UoFs

Option 3: Union of UoFs (No abstraction)

4.3.2 Development of IRs (cont.)

Option 1: Abstraction of Intersection UoFs

Same as current strategy.

Issue:

How to create AIMS corresponding to the residual part of UoF other than intersection. Generation of independent model in AP is not preferable.

4.3.2 Development of IRs (cont.)

Option 2: Abstraction of Union of UoFs

Multiple Unions of UoFs to be supported by an IR.
Future AP requirement could be supported by abstraction.

Option 3: Union of UoFs (No abstraction)

UoFs in AP can be supported directly by IRs.

● Recommendation: “*Option 2*”

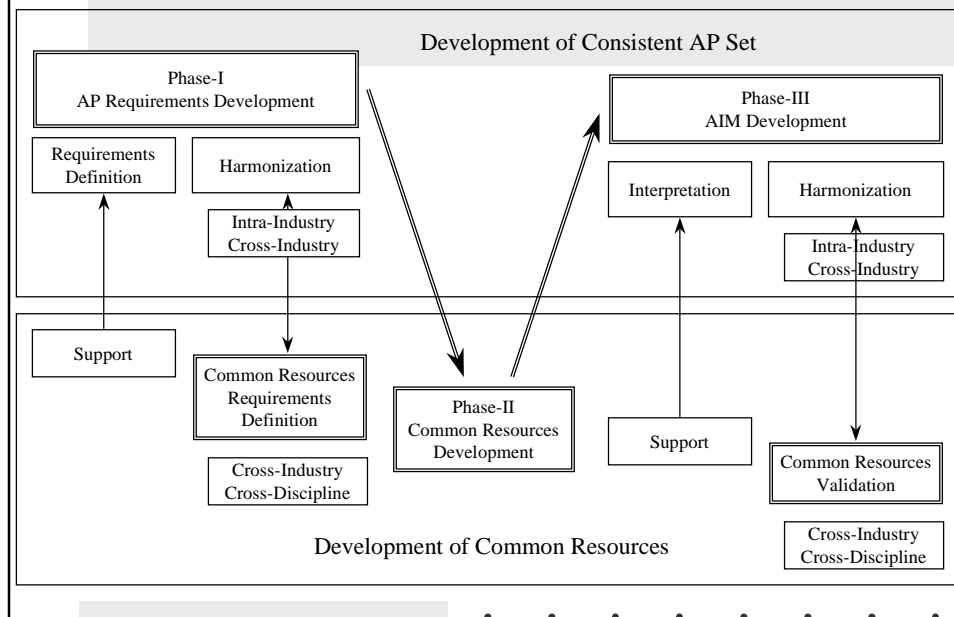
4.3.3 Development of AICs

(5) Application Interpreted Construct (Phase-II)

AIC Library

Generalized UoF + Mapping to IR

4.3.4 Harmonize Interpretation



4.3.4 Harmonize Interpretation (cont.)

(6) AIM (Phase-III)

Interpreted model should be harmonized,
 Using AIC Library,
 with specialization of,
 subsetting,
 renaming,
 adding constraint. See Annex A.

5 AP Conformity Level

- AP Conformity Level
 - Measurement how far each AP satisfies the Constitution of STEP

*AP Conformity
Level*

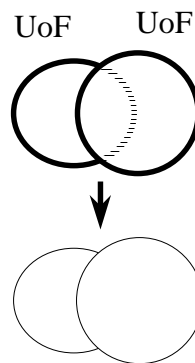
Qualification Criteria

Level 3.0	AP with Cross-Industry Harmonized AIM
Level 2.0	Cross-Industry Common AP
Level 1.0	AP with Intra-Industry Harmonized AIM
Level 0.0	AP with AIM not Harmonized with the others
Level -1.0	AP without AIM

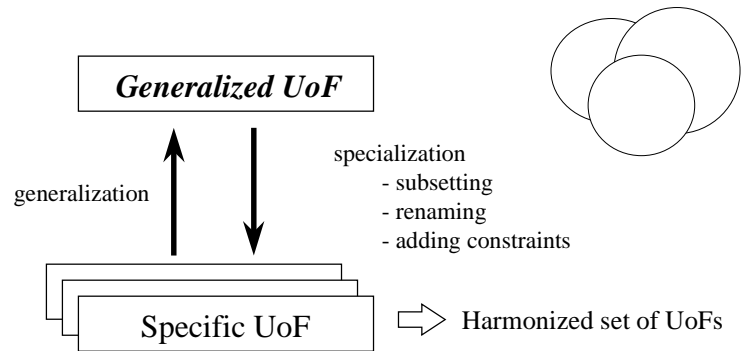
Annex. A Generalized UoF

Harmonization of UoFs (Phase-I)

- Take union instead of intersection.

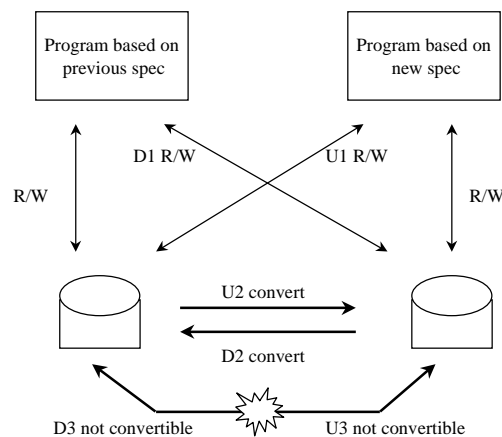


Annex. A Generalized UoF (cont.)



Annex B Compatibility and Version/Release

Compatibility



Definitions of Version and Release

Compatibility	Version	Release
U1	-	X
U2	X	X
U3	(NA)	(NA)
D1	-	P
D2	P	X
D3	(NA)	(NA)

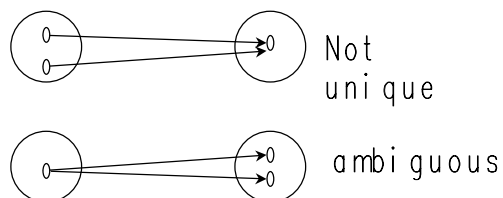
X : to be realized
 P : may be realized
 - : will not be realized
 (NA) : not applicable

Annex C Interoperability

- What is 'interoperable' ?
 - for data sharing through SDAI
 - for data exchange

Annex C Interoperability (cont.)

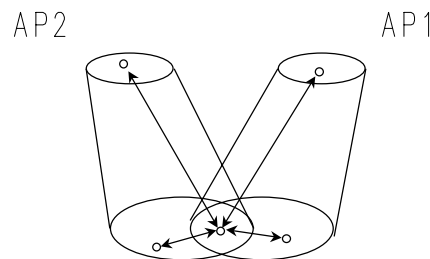
- consistency
= unique & unambiguous



Annex C Interoperability(cont.)

– Data sharing through SDAI

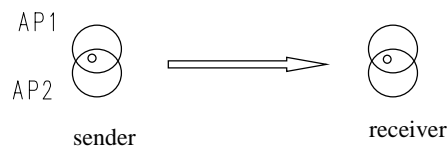
- Data in intersection of APs to be accessible (read/write) from both APs, consistently
- Data in intersection of APs can refer to / can be referenced from data in residual domain of each AP



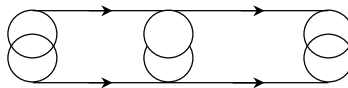
Annex C Interoperability(cont.)

– Data exchange

- Receiver can regenerate data in the intersection of APs in sender model, uniquely and unambiguously, ...



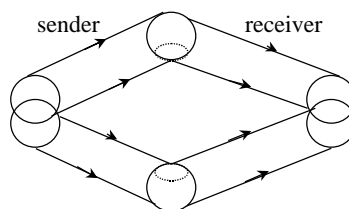
- case 1: integrated data
 - When sender generates and sends a file including data for two APs.



- ➡ Data exchange with multiple schema is necessary.

Annex C Interoperability (cont.)

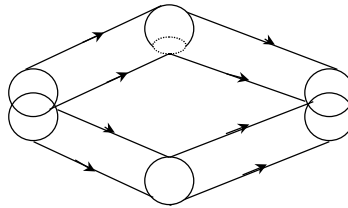
- case 2: redundant data
 - When sender generates and sends separate files for each AP.



- ➡ Data in multiple files corresponding to a single data instance in senders model, must have same ID.

Annex C Interoperability (cont.)

- case 3: complementary data
 - When sender generates and sends a file whose data includes part of the model other than those which was sent in other file.



- ➡ Mechanism is necessary to convert internal reference to external reference and to reconvert backwards.